Organizational Aesthetics

Volume 3 | Issue 1 Pages 42 - 64

7-23-2014

# Cultural content in the digital arena: toward the hybridization of legal and business models

mariateresa maggiolino
*Bocconi University*, mariateresa.maggiolino@unibocconi.it

Maria Lillà Montagnani
*Bocconi University of Milan*, lilla.montagnani@unibocconi.it

Massimiliano Nuccio
*Leuphana Universität – Ask Research Center*, massimiliano.nuccio@unibocconi.it

*Organizational Aesthetics* 3(1): 42-64

www.organizationalaesthetics.org

# Cultural content in the digital arena: toward the hybridization of legal and business models

Mariateresa Maggiolino
*Bocconi University – Ask Research Center*

Maria Lillà Montagnani
*Bocconi University – Ask Research Center*

Massimiliano Nuccio
*Leuphana Universität – Ask Research Center*

**Abstract**

Literature on online piracy has focused mainly on the legal framework necessary to prevent and punish copyright infringements on both the demand and supply sides. More recently, marketing and psychology studies have tried to understand the behavioral and ethical aspects connected with the consumption of pirated digital goods but little attention has been dedicated to the evolution in the distribution of digital content. This paper will analyze digital business models, isolate the main forms of digital distribution and evaluate the degree of hybridization that these businesses have accomplished in the move away from the traditional brick-and-mortar model.

The article presents the results of an empirical study of 597 websites which distribute digital media content. For each website, data have been collected on a range of features including the distribution methods, the technical restrictions imposed on content, the copyright management and licensing systems, and the revenue models adopted. Using a non-linear cluster technique, the data collected reveal unexpected characteristics in the current landscape for online distribution. While it is commonly assumed that the current legislative framework tends to incentivize a system based on strong legal and technological control over content, the cluster analysis reveals that legal factors are not the most relevant ones in shaping a landscape which is mostly determined by technology and organizational solutions. The authors conclude by offering hybridization policies as a possible strategic development for fighting online piracy.

**Keywords**: digital business models, online piracy, hybridization, self-organizing maps

# Cultural contents in the digital arena: toward the hybridization of legal and business models

This paper aims to investigate the processes of *hybridization* that are currently affecting the business models adopted in the distribution of digital content (or digital business models - DBMs). Undertaking an empirical analysis of a significant number of websites distributing digital content, the paper will contribute to filling the gap in the literature dealing with hybridization. The latent hypothesis is that hybrid business models may represent a promising strategy on the supply-side for promoting the legal distribution of copyrighted digital works. The analysis of different hybrid business models shows how companies can adopt business solutions which indirectly prevent the distribution of pirated products. In order to support the diffusion of hybridization, an enabling legal framework should be supported.

The paper is structured into five parts. The first section illustrates the boundaries of what is known as the "online piracy phenomenon" and the various tools that have been suggested for tackling it. The second section engages with the theoretical framework regarding the online offering of digital goods, in particular recalling what we have named the "MAK" model, a tool developed by Brousseau and Penard (2007) and based on three main dimensions of DBMs: matching, assembling and knowledge management. Section three presents the analysis of a sample consisting of 597 websites which are classified along 76 variables. Employing a non-linear technique of clustering (SOM), four different clusters emerge; in other words, paradigmatic models of digital distribution – say archetypes – that characterize the current supplying of digital content. Part four reconciles these bottom-up results with the MAK model in order to evaluate the degree of hybridization of each archetype. In part five we are able to conclude that hybridization is a kaleidoscopic phenomenon that affects all DBMs to a different extent. As a result of this analysis each archetype shows a different shade of hybridization. Based on these findings, we offer some policy recommendations as to how copyright law should morph in order to support – or, at least, not discourage – the flourishing of hybrid business models as valid options for fighting online piracy.

## Hybridization as an alternative means to limit online piracy

Public opinion in general tends to agree that policy makers should do whatever they can to defeat online piracy and, thus, remedy the serious harm that it is actually causing to the entertainment and cultural industries. Yet, this thesis hides three ambiguities: the identification of the real boundaries of what is called "online piracy", the questionability of the empirical methods employed to assess the harm that online piracy is supposed to impose, and the analysis of the array of tools that policy makers could use to fight against it. As a consequence, this paper offers its own definition of online piracy, a simple list of the major negative and positive consequences that online piracy is said to cause, and a preliminary description of the tools suggested for removing the causes and tackling the consequences of online piracy.

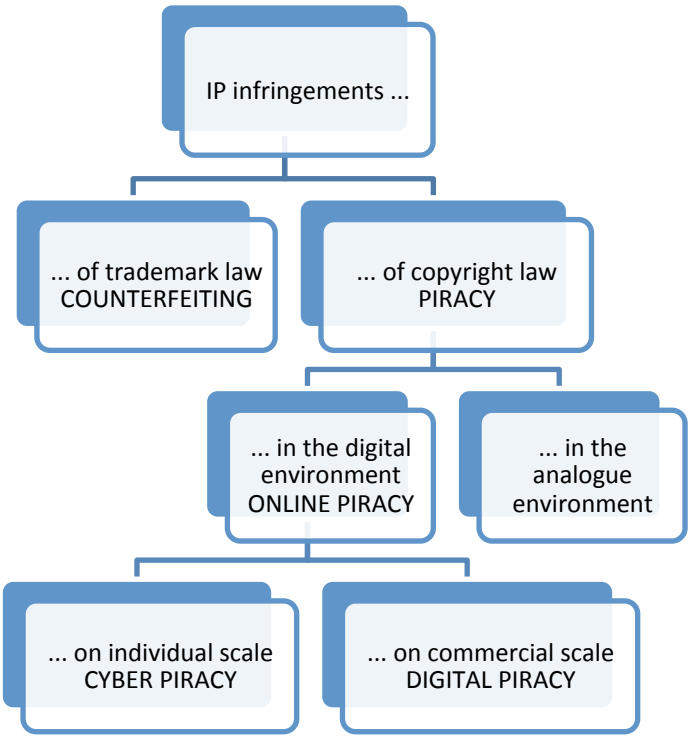


**Figure 1. The definition of online piracy (personal elaboration)**

In this paper, the idea of "online piracy" addresses those cases of copyright law infringements that take place in the sole digital environment.[1] The paper shares the simplified idea that, whereas the term "counterfeiting" refers to the unauthorized material reproduction or imitation of physical manufactures bearing a trademark, the word "piracy" stigmatizes the appropriation and reproduction of works protected by copyright law and other related rights (Figure 1).[2] Furthermore, the paper chooses to disregard unlawful behaviors that may happen in the off-line setting in connection with analogue copyrighted works. Rather, it looks at practices involving digital copyrighted materials offered on the web, regardless of whether they are available on a commercial scale – thus making the case for what could be strictly named "digital piracy"[3] – or on an individual (or small) scale – thus making the case for what could be more properly named "cyber piracy".[4] Although an essential distinction should be drawn between copyright infringements committed on a commercial scale and copyright infringements committed on an individual (small) scale,

[1] "Hard goods piracy" (Dejan, 2009: 4-5), i.e. piracy referring to the reproduction of physical products such as CDs and DVDs is not considered in this work.

[2] In its general sense the concept of "counterfeiting" may cover all goods (products, processes and services) which are the result of an infringement of intellectual property rights (IPRs). Yet, many statutes use the word "counterfeiting" to refer to goods unlawfully bearing a trademark and the word "piracy" to refer to creative works unlawfully used/copied (see *infra* for the distinction). For instance, the Council Regulation (EC) No 1383/2003 on customs actions defines "counterfeit goods" as "goods, including packaging, bearing without authorization a trademark identical to the trademark validly registered in respect of the same type of goods, or which cannot be distinguished in its essential aspects from such a trademark" (art. 2(a)(1)), and defines "pirated goods" as "goods which are or contain copies made without the consent of the holder of a copyright or related right or design right" (art. 2(b)). Otherwise these definitions recall the note to art. 51 of TRIPS Agreement as referring "counterfeit trademark" and pirated copyright goods".

[3] Most of the current studies on piracy refer to "digital piracy" as not including infringements committed by individuals, for example through unauthorized downloading. The UK IP Crime Group Report clearly makes this point by stating that individuals' online infringements are "IP crimes" only where they are "done during the course of a business or carried out on a commercial scale" (IPO, 2010: 7). Similarly, the TNO-IVIR Report (2009: 16) makes a distinction between "commercial piracy", which profits from the reduced costs of distribution as compared to those of the legitimate copyright holders, and file-sharing by individuals on peer-to-peer networks. However, some authors consider "digital piracy" as including any restricted activity occurring online (Hill, 2007: 10).

[4] For the use of the expressions such as "cyber piracy" or "IP infringements" to address individual copyright law infringements *see* Peitz and Waelbroeck (2006: 450) and TNO-IVIR Report (2009: 15).

currently the word "piracy" addresses the behavior of using someone else's copyrighted work without paying for it. Therefore, it covers even that range of behaviors which fall on the side of an individual's unauthorized consumption of copyrighted works.

*The economic impact of online piracy*

Many previous empirical studies provide evidence of the impact of online piracy on the entertainment and cultural industries. Yet they do not offer exhaustive analyses, consistent data and comparable frameworks; their results come mainly from case studies, collections of opinions and samples based on questionnaires.[5] Some of these studies consider partially overlapping, but not neatly fitting, categories of users such as internet clients, down-loaders and consumers of digital goods and consumers of digital goods who illegally share digital files. Moreover, they may examine different industries and diverse local, regional or national markets. Furthermore, they may list the technical emergence of online piracy from various net-sources: local sources, P2P, Warez sites, one-click hosting services, online streaming websites and leech sites. Also, many studies may not appear totally impartial since they are developed by industry-related bodies such as the RIAA and the IFPI. Finally, as many have recently acknowledged,[6] if counterfeiting of tangible products can be relatively easily measured, unlawful phenomena that involve intangible goods are very difficult to evaluate.[7] Several academic papers rely on (questionable) proxies to make an educated guess as to the dimensions of online piracy; some of them assess piracy on the basis of the use of the internet, while others do so on the basis of the amount of data transferred in P2P networks (Dejan, 2009; Liebowitz, 2008; Blackburn, 2007; Oberlholzer and Strumpf, 2007; Zentner, 2006; Peitz and Waelbroeck, 2006; Boorstin, 2004).

As a consequence of the absence of reliability and comparability in the outcomes of these many empirical analyses, this paper tries to list the major available data by distinguishing between the negative and positive consequences usually associated with online piracy (GAO, 2010; TNO-IVIR, 2009; Peitz and Waelbroeck, 2006; Balestrino, 2008).

In terms of the negative consequences, IPO (2010) reports that online piracy causes a notable negative impact on the whole of society because of the costs involved. Such costs range from the legal expenses due to the detection and prosecution of IP infringements to the social harm arising from the proliferation of unauthorized behaviors. Moreover, it is frequently assumed that illegal file sharing and downloading – which mainly refer to what has been herein defined as "cyber piracy" – cause a significant decrease in the demand for traditional entertainment goods and services (TNO-IVIR, 2009; IFPI, 2010). Illegal file sharing and downloading are supposed to both substitute for the purchasing of traditionally recorded music as well as of DVDs, games and or cinema visits, and to defer the purchasing of these products at lower prices and quality (TNO-IVIR, 2009; Curien & Moreau, 2009; Staake, Thiesse and Fleish, 2009; Dejan, 2009; IFPI, 2008; Curien & Moreau, 2007; Zentner, 2006; Liebowitz, 2008). For instance, between 2004 and 2008, EU sales of recorded music dropped by 36% at the retail level, representing losses of close

[5] See, e.g., TNO-IVIR Report (2009) and Andersen and Frenz (2007), which use a sample to monitor willingness to pay for pirated goods and the frequency of piracy in order to establish a ratio of illegal digital files to overall digital sharing.

[6] The position of the American GAO seems a fair recognition that a lot of work is still needed to gain a clear evaluation of the phenomenon: "There is no single methodology to collect and analyze data that can be applied across industries to estimate the effects of counterfeiting and piracy on the U.S. economy or industry sectors." (GAO, 2010: 19). Likewise, Dejan (2009: 5-6) observed that, if in hard-goods piracy it is more or less possible to draw up a consumer profile with specific socio-economic characteristics, in digital file sharing still we have to cope with measurement problems that can be referred to as: (i) a decentralized structure of provision, which makes tracking of illegal copies expensive, (ii) the changing of "information" into an intermediate product that makes copyright law disputable, and (iii) the principle of net-neutrality, which forbids discrimination against content.

[7] The significant increase – by 126% in 2008 – in the number of infringing goods detained at the European Union external border induces a belief that the total value of pirated digital goods has seriously risen as well. This seems even truer if we consider that only 5% of goods passing through customs are actually checked.

to €4 billion (Price Waterhouse Coopers, 2009), and between 1999 and 2007 US music industry revenues decreased by 28% (IFPI, 2009). On the other hand, although sales of digital music have made notable progress,[8] the 2004-2008 decline of 26% in the overall retail market (Price Waterhouse Coopers, 2009) suggests that DBMs are generating only small revenues.[9] Likewise, in the film industry, during the same timeframe (2004-2008) admissions to European cinemas dropped by 5%, representing 57 million lost entries. Meanwhile, physical DVD sales and rental revenues fell by 14%, causing a drop in revenues of around €2 billion, taking into account sell-through sales and DVD rentals.[10] Simultaneously, a report by BSA (2010: 1-3) states that about 40% of software installed on PCs is unlicensed: as a result, unauthorized software causes losses of revenue, employment and taxes from related sectors totaling about $110 billion.

In terms of the positive effects of online piracy, many scholars argue that even if the production sector stands to lose from the existence of copies, the increase in consumer surplus may overcompensate for such a loss, leading to an overall welfare improvement (Staake, Thiesse and Fleish, 2009; Oberholzer-Gee and Strumpf, 2007; Balestrino, 2008; Andersen and Frenz, 2007; Hill, 2007; Liebowitz, 2008; and Shapiro and Varian, 1999). By and large, economists argue that piracy is a welfare-increasing activity, maintaining that it leads to positive network effects (in terms of learning spill-over, lock-in effects and brand awareness) and market expansion. As to this latter effect, which is the most significant, economists claim that piracy may: (a) introduce new consumers to music, films, games, artists and genres, thus creating new niches of demand, (b) allow consumers to pool their demands together so that they achieve sufficient scale to justify the distribution of specific content, (c) enhance the popularity of products, boosting connected demand, and (d) raise willingness to pay for connected services such as concert tickets and related products.

*Possible tools for removing the causes and fighting the consequences of online piracy: the focus on hybrid models*

The most recent literature about online piracy establishes a kind of linear relationship between the several factors that may trigger it and the compounded means that could work to significantly reduce it. As to the former, three groups of causes have been selected (OECD, 2009: 29-35), namely:

(i) personal reasons which push agents to offer pirated goods
(ii) technological tools which make it easier and less expensive to produce and re-produce pirated goods
(iii) the institutional environment (i.e. the political, cultural, moral and social context) which allows (or does not actually prevent it) online piracy to occur.

In terms of the personal reasons, a premise is due: many individuals are not able to explain why they offer pirated goods and which of their many e-behaviors – for instance,

[8] For instance, about 70% of all music consumed in the US, UK, France and Germany – which are the main global markets – came through digital channels. See, in this regard, IFPI (2010), (2009) and (2008).
[9] Indeed, according to a report by TERA Consultants (2010), which focused on piracy and counterfeiting in Europe's music, film, television and software industries, the value added by the creative industries (and their dependent industries) across the EU was €860 billion in 2008 (6.9% GDP), and physical and digital copying caused an estimated revenue loss of €10 billion and 185,000 jobs over that period. Total employment in the creative industries (core creative industries plus non-core creative industries) was approximately 14 million, or 6.5% of the total EU workforce.
[10] See, e.g., IFPI (2010), (2009) and (2008); TNO-IVIR Report (2009); Price Waterhouse Coopers (2009). In particular, according to TERA Consultants (2010), extrapolating from the retail losses of five European main markets, piracy in the audio-visual sector accounts for about €5.3 billion and 135,000 jobs. The report provides two scenarios of estimated piracy-driven losses up to l2015, both based on Cisco System's internet traffic forecasts and assuming that no measures are taken to address piracy. In the worst scenario, the assumption is made that digital piracy growth will follow global consumer IP traffic trends in Europe (i.e., communications made via the Internet Protocol): if this trend continued then up to 1.2 million jobs and €240 billion worth of European commerce could be wiped out by 2015.

file sharing or uploading – are unlawful (TNO-IVIR, 2009: 61). Therefore, scholars speculate that profit is not the only, and, perhaps not even the most important, factor that pushes individuals to offer pirated and counterfeited goods, even though their sale may generate large profits.[11] They assume that three non-monetary factors play a major role in determining online piracy: the desire to share, given that collectivism assumes that "sharing" has a moral and social value, the desire to be recognized as a person who allows sharing, and the desire to be a part of a reciprocity mechanism which allows single individuals to obtain products that were not achievable before, as well as to gain from new and better technologies.

In relation to the technological security measures (OECD, 2009: 32-33), the literature explains that these limitations often do not exist, and if they do exist (for example, DRM systems) they can be easily cracked. On the contrary, technologies are opportunities that favor the supplying of pirated goods (Theng and al., 2010: 32), not only because they make supplying easy and quick but also because the quality of the pirated and counterfeited goods is almost the same as that of the original goods (TNO-IVIR Report, 2009: 81).

In terms of the institutional environment (OECD, 2009: 33-35), scholars seem to support the idea that if institutions developed a better structured online environment, such an environment would/could be a stand-alone shield against online piracy. In addition, the literature stresses that consumers are not well-informed and educated enough to know whether and when they violate IP laws (Chaudhry and Stumpf, 2010: 351; TNO-IVIR, 2009: 61). Most users do not share the view that online piracy is wrongful and immoral (Balestrino, 2008: 465-466; Hill, 2007: 11), especially because many internet communities feed anti-big and pro-equity feelings (Chaudhry and Stumpf, 2010: 351; Hill, 2007: 12). On the other hand, staff members in firms are not skilled enough to defend IP rights (Theng and al., 2010: 33), and IP enforcement is often very expensive and ineffective.

In connection to the various and compounded solutions developed to prevent online piracy (OECD, 2009: 42-59), it has to be remarked that they are numerous not only because they address different agents (such as IP holders, firms, business associations, governments, cultural institutions, scholars and cultural intermediaries) but also – and especially – because they deal with different facets of online piracy. In particular, as hinted above, some solutions are linked to those factors that scholars consider the causes of online piracy. For instance, these solutions suggest:

[11] Consider, indeed, the indirect profits that come from online advertising and sponsored links, or the fact that pirated and counterfeited goods can be easily offered and purchased from any place where an internet connection is available, regardless of language or geographical limits. See, in this regard, Theng and al. (2010: 32). Turning to direct profits, some scholars assume that making savings via online piracy is one of the monetary reasons that push individuals to consume pirated and counterfeited goods – see, e.g., Chaundry (2010: 351). Yet this clarification moves the discussion to the demand side: it does not give an answer to the question of why individuals upload pirated and counterfeited goods but to the question of why individuals download pirated and counterfeited goods. According to the reciprocity mechanism, individuals would upload pirated and counterfeited goods in order to download pirated and counterfeited goods.

(i) Explaining online piracy and its immorality to people (Chaudhry and Stumpf, 2010: 355; TNO-IVIR, 2009: 122); Hill, 2007: 22)
(ii) incentivizing the private and public enforcement of IPRs
(iii) increasing the level of deterrence that IP laws can guarantee, possibly even by including criminal sanctions (Chaudhry and Stumpf, 2010: 355; Theng and al., 2010: 43; TNO-IVIR, 2009: 122; Hill, 2007: 22)
(iv) making the legal consumption of legal content more appealing (Hill, 2007: 20-21) by reducing the price of legal goods, thus making such content more affordable for low-income consumers, and by supplying extra services to legal consumers that could work as a kind of "premium for legality".

Other solutions acknowledge the abovementioned positive consequences of online piracy. They suggest, on the one hand, being lenient towards online piracy, so as to somehow trigger and enjoy the demand increase that online piracy produces (Hill, 2007: 20-21) and, on the other hand, transferring the benefits that online piracy produces to those who have been harmed by it. In particular, some scholars believe that this result could be achieved in two ways. Firstly, content providers may vertically integrate with internet service providers so as to oblige the latter to share the extra profits that online piracy produces with the former (Curien & Moreau, 2007: 169-171). Secondly, controlling institutions may oblige concert organizers and other economic agents that see their profits increase because of online piracy to share part of these extra profits with content providers (Curien & Moreau, 2009: 103). Moreover, advocates of online piracy's benefits further suggest learning from online piracy about how to use new technologies, such as P2P and sampling, to distribute digital content (Hill, 2007:20) and about how to make profits (TNO-IVIR, 2009: 121) by adopting the so-called hybrid business models.

By and large, hybrid business models would be able to mix the tools dear to market economies with the tools that altruistic piracy has developed so as to improve the quality of the supply.[12] Theoretical and empirical papers have not provided a full description of them yet. Therefore, in this paper, we examine whether, on the basis of our sample, it is possible to affirm the existence of a single "recipe" for implementing hybrid business models and, thus, ameliorate the supply of digital goods.

**Analysis of DBMs: the MAK**

The analysis of hybridization presented in this paper is based on the theoretical framework developed by Brousseau and Penard (2007) for DBMs. This framework balances what the authors described as the main dimensions of digital business: "matching", "assembling" and "knowledge management".

| Dimension | Trade-off | Measures |
|---|---|---|
| MATCHING | 1. STRUCTURE (competitive/monopolistic) | Range of products |
| | 2. SERVICE INTEGRATION (high/low) | Range of services |
| ASSEMBLING | 3. SCOPE (wide/narrow) | Universal/proprietary standards |
| | 4. VALUE (free/provision) | Source of revenue |
| KNOWLEDGE MANAGEMENT | 5. ORGANIZATION (hierarchical-low/spontaneous-high) | Interaction with the consumer |
| | 6. IPR MANAGEMENT (open/closed) | IPR regime |

**Table 1. Connection between theoretical framework and possible measures**

[12] This is likely to be the aim of the project undertaken by some of the Pirate Bay founders, who have launched a new online platform that they say respects the rights of copyright holders (http://www.thelocal.se/35854/20110830/).

The combination of these dimensions into what we have named the "MAK model" illustrates the various facets of the kaleidoscopic phenomenon of hybridization. The first dimension – matching – refers to the process of intermediation between demand and supply and focuses on the level of transaction costs. It is commonly recognized (Hawkins et al., 1999) that exchanges in the digital environment have lowered the level of intermediation. Yet this is probably not applicable to all market operators and it presents different degrees of application. An evaluation of matching implies, on the one hand, the range of products exchanged through a digital platform (see *structure* in Table 1) and, on the other hand, the degree of integration of the services available for the exchange (see *service integration* in Table 1). A website is considered to reduce transaction costs whenever its platform is open to different products and when the ease of use is enhanced by services integrated all along the value chain (e.g. digital payment, logistics, digital catalogue, etc.). Therefore, the matching dimension is split into two elements:

1. Structure, which runs from competitive to monopolistic and is measured through the range of products.
2. Service integration, which runs from high to low and is measured through the range of services.

The second dimension – assembling – deals with the incentives of producers in creating interoperability among functionalities with different standards (see *scope* in Table 1) and in exploiting the economies of scale available at any level of the value chain as well as identifying different sources of value (see *value* in Table 1). The wider the technological and economic scope of the platform, the easier it is to offer personalized services to heterogeneous demand and to differentiate the sources of income on the supply side. The depth and span of the offer have a trade-off in the cost of assembling products and making them available to customers. Therefore, the assembling dimension is split into two elements:

1. Scope, which runs from wide to narrow according to the openness of the standards (from universal to proprietary standards).
2. Value, which runs from free to provision on a fee basis and is assessed through the sources of revenues.

The third dimension – knowledge management – focuses on content which is mainly knowledge-based (which encompasses copyrighted content) and on the cost of managing information. Firstly, DBMs have to choose whether to centrally control the flow of information through a clear hierarchy or leave it decentralized and spontaneous (see *organization* in Table 1). Secondly, they have to adopt a specific IPR regime for their product and services and they have to clarify how they intend to manage the information collected from customers (see *IPR* in Table 1). The definition of privacy policies and IPR regimes implies a certain level of control over the client as well as a degree of regulation of the product in terms of the use of content. Therefore, knowledge management is split into two elements:

1. Organization, which runs from hierarchical and highly organized to spontaneous and un-organized and is assessed through interaction with the consumer.
2. IPR management, which runs from open to closed and is evaluated via analysis of the IPR regime.

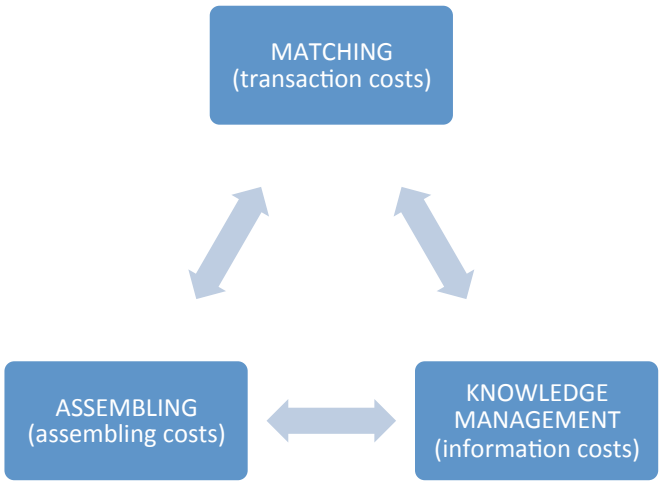


***Figure 2. Three dimensions of digital business models (DBMs)***

DBMs can then be drawn as patterns inside the three dimensions and specified by the intensity of each dimension. As noticed by Brousseau and Penard (2009), platforms acting as distributors of digital content are facing strategic dilemmas about these three dimensions and will only be able to successfully compete if they can be positioned in one of the above mentioned sub-markets. Thus, DBMs can choose among or mix the following strategies:

- acquiring a monopolistic or oligopolistic position in the matching dimension(either market segment or niche)
- forecasting the distribution of consumer assembly preferences for customized, highly-integrated services as opposed to free access but lower quality services (containing advertising content while assembly costs are borne by consumers)
- building on the knowledge generation process, for the power of online communities is growing and often not meeting business needs.

The dimensions in the MAK model therefore show different corresponding levels of interpretation: components of the DBM, competitive strategies and sub-markets on the demand side.

**An empirical analysis of DBMs**

To offer an empirical account of the hybridization phenomenon, we conducted an analysis on a dataset of 597 websites distributing digital content (Borghi et al., 2012). All of these websites were assigned to one or more of the following categories, based on the types of core services offered:

- "Music Service": websites distributing mainly (but not necessarily only) musical content, through either downloading or streaming.
- "Web Radio": websites that host radio stations and offer streaming or podcasting of editorial content. Most of these websites offer live streaming as well.
- "Web Television": websites that host television stations offering streaming or podcasting of editorial video content. Most of these websites offer live streaming as well.
- "Video Service": websites that mainly offer streaming or downloading of video material, editorial or user-generated material.
- "Videogames": those websites that mainly offer video games to be played online or downloaded and played either offline or on specific platforms.

| | Count | % |
|---|---|---|
| Music Service | 130 | 21% |
| Video Service | 186 | 31% |
| Videogames | 88 | 14% |
| Web Radio | 160 | 26% |
| Web Television | 67 | 11% |

**Table 2. Typology of website**

All information was gathered by analyzing web pages, enrolling with web services and reading the terms of service, copyright information and privacy policies. It was then classified into 76 binary variables leading to the following categories:

*Content and Services* include the digital products and services offered on the website.
In the category *Distribution Method,* we included the ways in which content is made available to users.

*Technical Restrictions* gather all the limitations to the services provided, such as geographical limits to service provision, technical requirements (hardware, software, operating systems etc.) for using the service and restrictions on downloading.

The *Rights Management* set of variables relates to IPR Management: this set is associated specifically with the licensing regime.

The *Uploading Regime* could of course be included in the Rights Management set but we decided to create a specific category for it since it requires an accurate and dedicated analysis. The uploading regime explains how content submitted by users is licensed and protected by the website.

The *Revenue Model* set includes the sources of income for the music services analyzed: with this set we define whether an online service is provided through a subscription model, a pay-per-download model or an open source model. Variables about payment methods, such as credit cards, PayPal, mobile phone billing payments and other prepaid forms, are also included in the revenue set.

The *Privacy Regime* analyses the privacy policy declared by the websites, including what use companies will make of any personal information collected and if users have to express their consent to such uses. With this set we also have the chance to analyze whether or not registration to websites is required in order to access and use the services provided and, if yes, what personal information users are asked to deliver.

Finally, with the *Social Networks*, we verified if the websites provided a link to the main social networks or just signaled their presence on them. It was not part of the analysis to verify whether a website was actually present on such social networks. The intention was only to evaluate whether they signaled it or not.

| **Categories** | **Binary Variables** |
|---|---|
| Content & Services (CS) | 1.Ebooks 2.Mobile 3.Applications 4.Music 5.News 6. Pictures 7.Playlist 8.Ringtones 9.Video 10.Videogames |
| Distribution Method (DM) | 11.Downloading 12.Streaming 13.Embedding 14.Hosting 15. Link Retailer 16.Live Streaming 17.Mobile 18.Podcast 19.Syndication |
| Technical | 20.DRM Free Content 21.DRMed Content |

| | |
|---|---|
| Restrictions (TR) | 22.Geographical Restrictions 23.Platform/Hardware 24.Software 25.Restrictions on Downloading |
| Rights Management (IR) | 26.All Rights Reserved on Content, 27.All Rights Reserved on Website 28.CC/GPL on Content 29.CC/GPL on Website 30.Clause Only-For-Non-Commercial-Use 31.Clause Only-For-Personal-Use 32.Modifications Not Allowed |
| Uploading Regime (UP) | 33.Uploading allowed 34.Claim of Ownership 35.Copyright Infringement Notice 36.Registration to Submit 37.Submissions Are Remunerated 38.User Maintain Rights 39.License Allows Derivative Works 40.Non Exclusive License 41.License Is Irrevocable 42.Up Non Exclusive License to Other Users |
| Revenue Model (RM) | 43.Pay Per Download 44.Donation 45.Subscription 46.Free No Advertisement 47.Free Download No Advertisement 48.Free Streaming No Advertisement 49.Free Podcast No Advertisement 50.Free With Advertisement 51.Free Download Advertisement 52.Free Streaming Advertisement 53.Free Podcast Advertisement 56.Credit Card 55.Othe prepaid 56.Paypal 57.Mobile Phone Billing |
| Privacy Regime (PR) | 58.Profiling Marketing 59.Expressed Consent 60.Consent To Access 61.Data Required to Access 62. Age 63.Email 64.Gender 65.Name Surname 66.Post Code 67.Telephone 68.No privacy policy |
| Social Networks (SN) | 69.Forum Blog Chat 70.Link Facebook 71.Link Myspace 72.Link Twitter 73.Presence Facebook 74.Presence Myspace 75.Presence Twitter 76.Recommendation |

**Table 3. Matching websites with the categories of DBMs**

A cluster analysis was applied to the above dataset in order to extract and evaluate DBMs. Such a grouping technique can be achieved using various algorithms that differ significantly in their definitions of what constitutes a cluster and how to efficiently find one.

Given the nature of the data and the dimension of the dataset, we employed the Self-Organizing Maps (SOM) algorithm, an unsupervised neural network algorithm developed by the Finnish physicist Teuvo Kohonen in 2001. It provides two useful operation tools for exploratory data analysis. First, it allows a simultaneous classification of the data. Second, it permits depiction of the multi-features that characterize our dataset within a two-dimensional scheme. The output of the SOM algorithm is a two-dimensional graph, the unified distance matrix (U-Matrix), which is a graphical representation of the observations in the sample (Ultsch et al., 1993).

The SOM assigns every observation (website) to a hexagonal cell in the U-matrix (Figure 3.a and 3.b). The number of cells depends on the inner structure of the data: in this case, data have been gathered in 30 different cells. The output represents the similarities between websites in two ways: firstly, websites in the same cells are very similar to each other and, additionally, cells which are closer on the U-matrix are supposed to gather websites with similar characteristics.[13]

In Figure 3.a the RGB color scale suggests the distances between cells: cold colors (blues) suggest strict similarity while warm colors (reds) point out the differences among the

[13] Since the geometrical distance in the U-Matrix also represents the degree of similarity across the different characteristics of the websites, the U-Matrix is also a topological map. See, in this regard, Vesanto et al. (2000).

websites in the sample. In Figure 3.b the dimension of black hexagons shows the number of observations inside each cluster.

However, while the SOM is valuable for drawing a broad picture of extensive data mining it is less effective at extracting features for each group. On the one hand, there are too many clusters available for a classification, since each hexagon represents a cluster. On the other hand, it does not provide clusters with neatly defined boundaries. As a result, the SOM portrays a nuanced landscape where the boundaries between clusters could be theoretically drawn where the differences among clusters are higher, i.e. in the U-matrix (Figure 3.a), in proximity to the red and yellow hexagons. For this reason, further processing of the SOM is needed. While several methods can be applied, in this study we have opted for the so-called K-Means clustering, which has enabled us to obtain four main clusters that can be easily used to describe the data set (Figure 4 and Table 4).

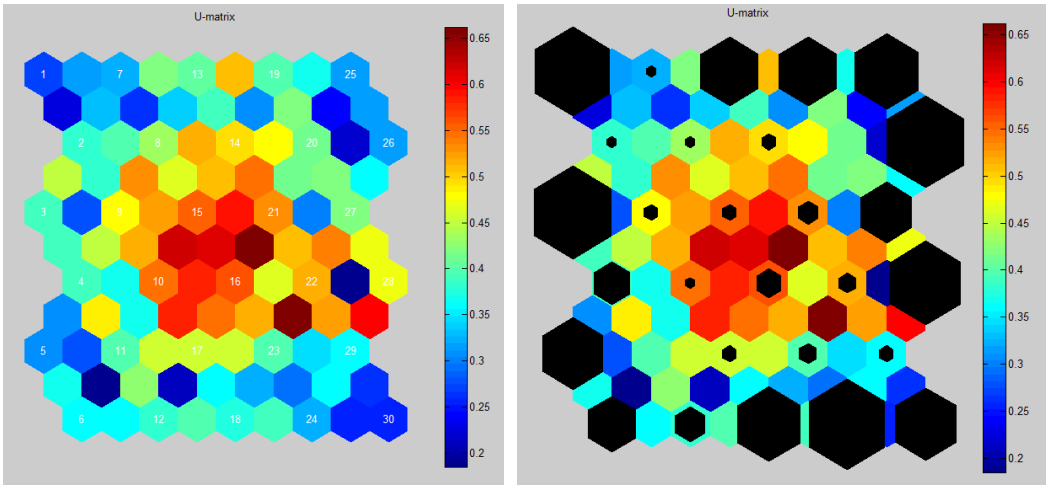


***Figure 3.*** **Unified distance matrix (U-matrix a.) and density of clusters (U-matrix b.)**

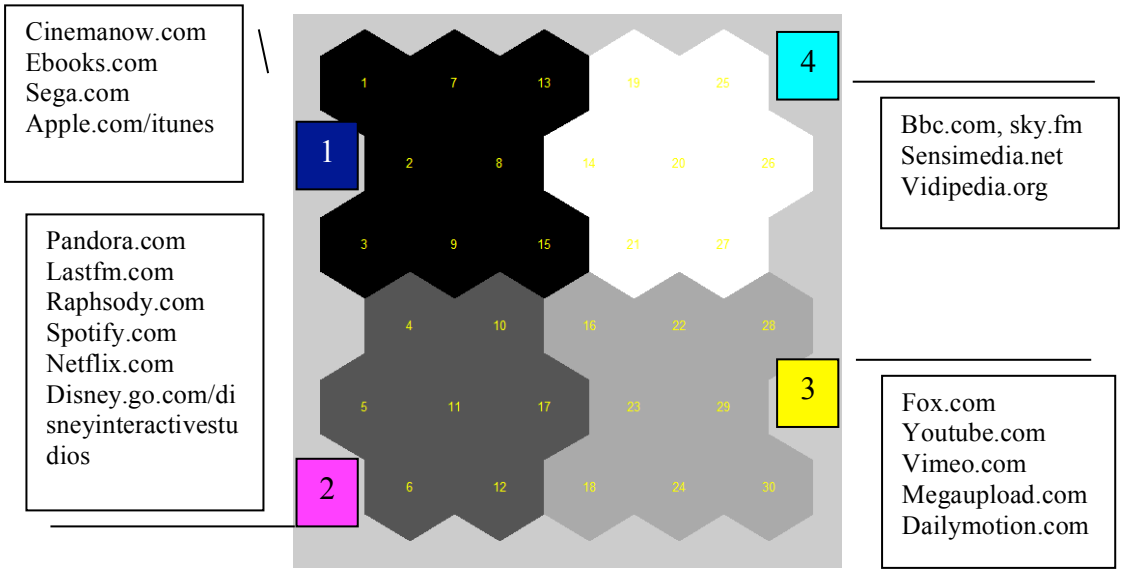


**Figure 4. K-means cluster on the U-matrix**

| | Count | % |
|---|---|---|
| Cluster 1 | 155 | 26 |
| Cluster 2 | 83 | 13,9 |
| Cluster 3 | 196 | 32,8 |
| Cluster 4 | 163 | 27,3 |
| Total | 597 | 100,0 |

**Table 4. Number of websites in the 4 clusters**

Before moving to the description of each cluster, two preliminary remarks are necessary.

First, the clustering analysis with SOM has been carried out without, on the one hand, ascribing each website to a given category of distributors, such as music distributors, video distributors and the like, and, on the other hand, without predetermining the numbers of clusters available. Indeed, this "bottom-up approach" has been considered the most adequate in order to point out the concrete models of distribution without any interference from previous knowledge of the sector.

Second, the following description of the archetypes does not focus on the nature of the content distributed within each cluster as most of the websites in our sample follow the same strategy of diversification. The analysis of the clusters has shown that the same range of digital products is available within each cluster and that the relative contents are not a characteristic and discriminating feature of the archetypes.

Although the archetypes that derive from this form of unsupervised classification are different one from the other and exist on a stand-alone basis, they still present some similarities. In the mentioned clusters, traditional and innovative features are combined to different degrees. It is the different combinations of their common features that characterize each business model and draw out their hybrid nuances. In other words, there is no cluster that is more hybrid than the others but they are all shades of the hybridization phenomenon, which has been made visible by the non-linear classification.

*Cluster 1: Proprietary and Non-Interactive (PNI)*

Cluster 1 reveals an archetype of proprietary and non-interactive distribution (PNI) similar to the business model pushed by digital copyright provisions. However it definitely does not coincide with a digital version of the brick-and-mortar models adopted in off-line distribution.

Cluster 1 is strongly differentiated from the other clusters as far as technological restrictions are concerned. Although DRMs are equally used by all the websites in our dataset, the websites belonging to cluster 1 adopt other technological restrictions more frequently than the websites belonging to the other clusters.

In terms of distribution methods and sources of revenue, cluster 1 differentiates itself significantly from the other clusters because its websites show a strong preference for "downloading" and "pay-per-downloads". In other words, while the websites belonging to cluster 1 share business strategies that clearly pivot around "downloading" and "pay per downloads", websites belonging to the other clusters tend to adopt business strategies that rely on various methods of distribution and sources of revenue available on the web.

Similarly to cluster 3, websites in cluster 1 opt for the "all rights reserved" regime on both the website pages and the content distributed.

Given these features – namely, high recourse to downloading and pay-per-download, a remarkable use of technological restrictions and a strong preference for the proprietary

copyright regime – the archetype associated with cluster 1 is likely to belong to the traditional sector of commercial distribution. This is even truer if we consider that the real innovative features of online distribution, such as website-user and user-user types of interactions, do not apply to websites belonging to cluster 1. Also, even in those few cases where the uploading of content by users is allowed, the websites acquire the ownership of such content, which is managed in the same way as any other content distributed by them. This solution represents "proprietarization" of an aspect, i.e. uploading, that, in contrast, could be a signal of interactivity.

*Cluster 2: Proprietary and Interactive (PI)*

Websites belonging to cluster 2 share many features with those of cluster 1, yet they differ in terms of interaction with users. Cluster 2 websites offer, among their many services, fora, chat, reviews and recommendations, i.e. services that help users to communicate and share their knowledge. Further, differently from cluster 1 and 4 websites, many cluster 2 websites have also a presence on the main social network platforms. Even more significantly, at least a quarter of them allow users to upload content. In contrast to cluster 1 websites, however, the upload regime is characterized by the fact that, in most cases, users are allowed to keep ownership of their content.

Other significant differences – still in comparison with the other clusters – concern distribution methods and sources of income. Websites belonging to cluster 2 add other distribution systems to downloading, such as streaming (as for websites belonging to cluster 4) and hosting, embedding and mobile distribution (as for websites belonging to cluster 3). On the other hand, they do not only use pay-per-download (still adopted by more than half of the websites in this cluster) but implement other sources of income as well. In particular, those based on advertisements are used by more than a third of the websites belonging to the cluster.

What these websites still have in common with cluster 1 websites is first the IPR regime, which is again "all rights reserved", and, second, the adoption of technological restrictions that are implemented by more than half of the cluster 2 websites. In other words, this cluster represents the flip-side of the coin of commercial distribution which, however, differently from cluster 1, does not neglect the emergent feature of interactivity. Due to these specific features, the emerging archetype can still be considered proprietary yet, at the same time, interactive (PI).

*Cluster 3: Open and Interactive (OI)*

The archetype that emerges in this cluster is characterized by interaction between websites and users to the extent that users are not only the final point of the distribution activity but become producers as well (or "prousers"). For this reason such an archetype can be defined as open and interactive (OI).

In the websites belonging to cluster 3, the degree of interactivity with users is higher than in those belonging to cluster 2. This fact can be derived by the increased use of fora, chats and other interaction tools, the increased presence on social networks and the increased number of links to the major platforms, as well as the wide uploading possibilities offered to users by two-thirds of cluster 3 websites. In addition, the uploading regime is quite different from that available within the other clusters. In fact, in the majority of cases in which uploading is possible, users keep ownership of the uploaded contents (95 websites out of 123), they license the content under a non-exclusive license (106 websites out of 123) and they can authorize the creation of derivative works by third parties (85 websites out of 123).

However, even in this context, the IPR regime chosen on the content distributed is the "all rights reserved" one and in this it does not differ from the other clusters.

In addition, in terms of distribution methods and sources of revenue, websites belonging to cluster 3 on the one hand modulate their offer among all systems of distribution – with a prevalence of streaming and live streaming – and, on the other hand, implement various sources of incomes – with a prevalence of ad-based systems.

In contrast, the recourse to technological restrictions is not as high as in clusters 1 and 2 (less than 20 websites adopt DRMs), with only one exception: software restrictions are usually implemented to enable distribution via streaming, which often requires the installation of a specific rendering application and its updates.

*Cluster 4: Open and Not Interactive (ONI)*

Cluster 4 websites seem residual since they combine some of the features that are typical of the other websites. What distinguishes this cluster from the others is to be found in the sources of income and IPR regime. As to the former, cluster 4 websites present a high degree of free distribution; as to the latter, some of them implement open licenses. Within cluster 4, these features are combined with a low recourse to interactivity and limited uploading possibilities, hence adopting the same uploading regime as cluster 1 websites.

The open nature of the archetype emerging from cluster 4 is confirmed by the rare implementation of technological restrictions. Only four websites adopt DRMs, and only three websites use geographical restrictions. Yet the employment of software and hardware restrictions is equal to that available in cluster 1.

Therefore, if the overall regime can to a certain extent be considered relatively open as to the IPR regime and the free distribution implemented, this is counterbalanced by a low level of interaction as the flow of content is unidirectional from the website to the users but not vice versa. Thus, the emerging archetype can be defined as open but not interactive (ONI).

Another feature of cluster 4 websites is the high investment in live streaming in comparison with other distribution methods (similarly to the websites belonging to cluster 3), and in part streaming (similarly to websites belonging to cluster 2).

In other words, the four cluster could also arranged along two axises as in the following chart:

| | Proprietary | Open |
|---|---|---|
| Non Interactive | 1. PNI | 4. ONI |
| Interactive | 2. PI | 3. OI |

**Figure 5. Classification matrix: 4 hybrid business models**

## 4. Different shades of hybrids

To locate the above mentioned DBMs within the MAK Model, every single variable has been represented as a proxy of the three dimensions and of the six trade-offs/measures (Figure 6).

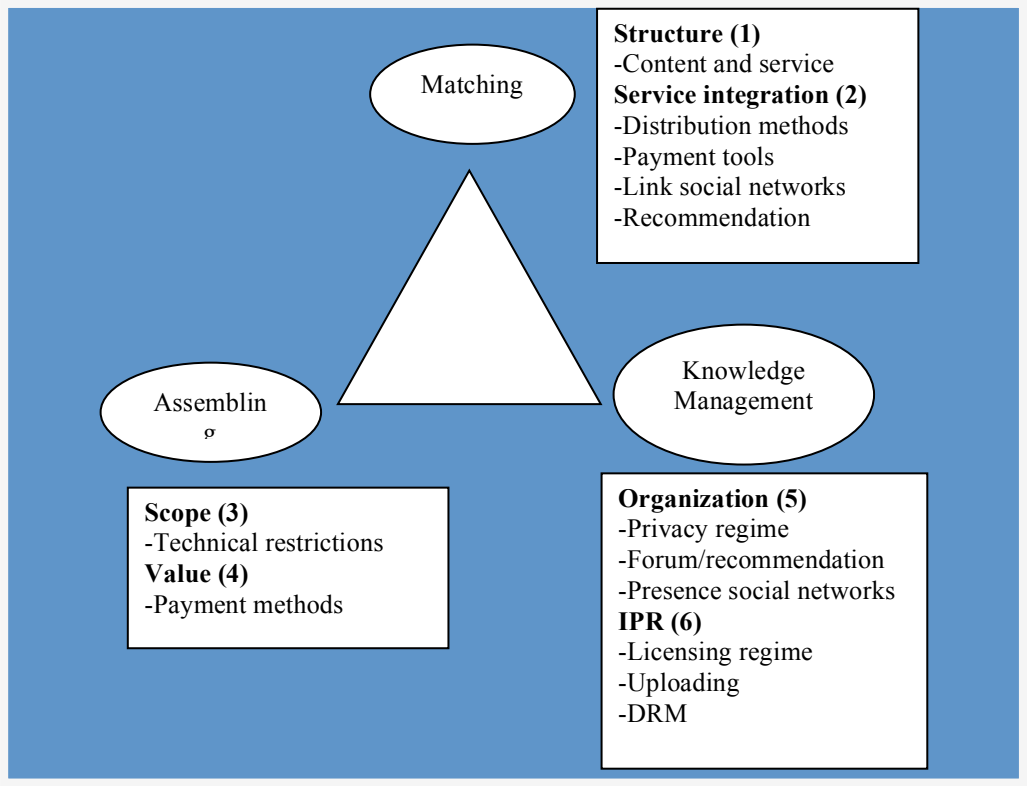


**Figure 6. The three dimensions and the six trade-offs of the MAK model associated with the variables of the dataset**

Each dimension in the four clusters has been weighted and an index based on the SOM value of the variables has then allowed a comparison across the different clusters.[14] As a result, the values in figures 7 and 8 correspond to the average relative weight of each variable in each cluster. All clusters have values higher than zero along the six trade-offs, which confirms that they are all part of the hybridization phenomenon and none of them are a simplistic online version of the brick-and-mortar model.

The hybridization phenomenon acquires a different shade in each cluster as a result of different combinations of the dimensions or measures.

[14] The index is a calculation of the relative weight of the selected variable in each cluster. It has been obtained by dropping those variables depending on a superordinate variable and those whose values are not particularly significant in the SOM cluster analysis. We calculated the difference between minimum and maximum in the original SOM codebook value across the clusters and we dropped those variables whose differences in value were under the threshold of 0.1. The final index value is the mean of the variables belonging to the same dimension in each cluster.

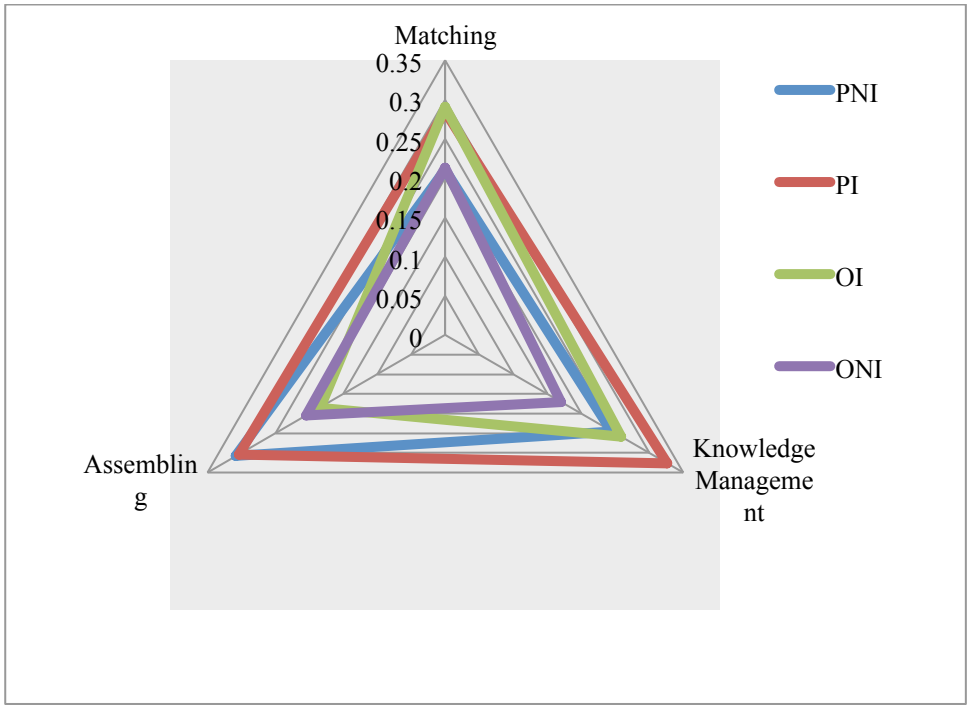


**Figure 7. MAK index on three dimensions**

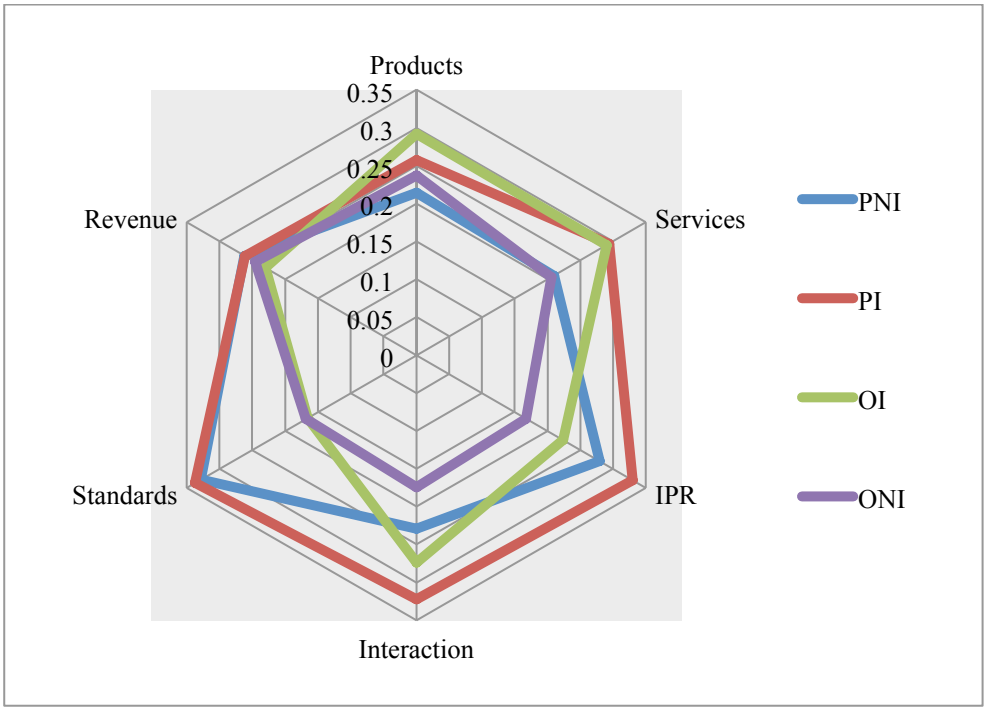


**Figure 8. MAK index on six measures**

Clusters tend to acquire a common position – quite unexpectedly – along the revenue measure, and – as expected – along the range of products offered. This is due to the fact that, in the current market of online distribution of digital content, websites adopt the strategy of both satisfying the widest number of users with diverse products and, consequently, implementing all available sources of revenue. While along the latter the clusters assume the same value, along the products measure the similarities are slightly weaker and, as a matter of fact, they need to be interpreted in the light of the range of services. Indeed, the position along the services measure confirms and strengthens what is already visible along the range of products: the richer the range of products offered, the

richer the range of services implemented to offer them. In particular, the difference between interactive clusters (PI and OI) and non-interactive clusters (PNI and ONI) is amplified along the services measure. This is due to the fact that some of the products mainly offered by Interactive clusters websites, i.e. videos and call for specific services, such as streaming, embedding and hosting, are not necessarily implemented when the products offered do not require them.

In terms of standards, it emerges that proprietary clusters (PNI and PI) do not promote interoperability in terms of compatible devices. They still tend to divide their geographic markets. In contrast, open clusters (OI and ONI) do not set technological and geographical boundaries to their offers.

Along the IPR measure the clusters allocated similarly to the "standards", i.e. proprietary, clusters (PNI and PI) have higher values than open clusters (OI and ONI), yet they show a lower standard deviation. Such a distribution reveals that websites in the proprietary clusters have a strong interest in owning not only their distributed content but also uploaded content, whereas open clusters admit other copyright regimes and they allow up-loaders to retain some control over their content. On the other hand, the very low value of the ONI cluster has to be explained by also taking into account the level of management required by the content distributed by ONI cluster websites and the low level of interactivity that they adopt. As a matter of fact, the copyright regime for content does not need to be clarified or aligned to the digital environment features when content is just streamed, i.e. in the case of web radios. In the same light, OI cluster websites have a higher value because they specifically need to regulate the copyright regimes on the content that is uploaded on their platforms as these websites, differently from cluster 4 websites, are very interactive.

Turning to the interactivity measure, although it is indeed very high for interactive clusters (PI and OI), it is almost absent for the ONI cluster (due to the abovementioned reasons). This picture is not surprising since in the digital realm interactivity is what "pro-users" expect most. It is also worth mentioning that high levels of interactivity mirror a wide range of service because many of the services offered are based on and serve the development of user-website and user-user relations.

**Conclusions and policy recommendations**

The above analysis illustrates the different facets of hybridization that organizations have adopted to better satisfy the manifold needs of the demand for on-line content. The rapid transformation of DBMs suggests that hybridization can be an effective tool for counterbalancing the unlawful offering of pirated content.

From the cluster analysis of websites distributing digital contents, DBMs seem to distribute along the degree of openness in relation to proprietary regimes and the degree of interaction with and between users. Four models with different business and legal features have emerged. Nevertheless, we cannot claim the preponderance of one over the others. The hybridization phenomenon is kaleidoscopic since it combines different factors that, to different extent, seek to interpret and satisfy consumers' needs and wants. By allowing all possible combinations, the supply will enlarge its capability to meet demand, thereby diminishing the need for further exogenous measures against piracy.

From a policy perspective, this hybridization phenomenon should be strengthened by the adoption of an "enabling legal framework" (EU Commission, 2011), i.e. a framework that will encompass at least two main changes to the copyright regulations currently in force.

Firstly, the interests of copyright holders, such as authors and intermediaries, are not limited to the traditional copyright regulations anymore. Instead, in the process of modernizing copyright law, wider space should be reserved for the interests of both final

users and users-creators, which is exactly the line followed in Canada and in the UK. It has been acknowledged that copyright exceptions generate increased economic impact. Thus, any modernization project should include a specific chapter on this topic and should consider its relevance for reinforcing the digital economy so to concretely contribute to cultural, and economic, development.[15] In Canada, Bill C-11[16] has enlarged the range of copyright exceptions, moving from the fair dealing exception to a broader approach in general via the introduction of a mash-up exception, format and time-shifting exceptions, and a set of expanded educational exceptions within the reformed copyright system. The UK is still studying the idea of expanding the list of permitted acts falling under the fair dealing provision by means of the inclusion of private copy, format-shifting exceptions, exceptions for research for non-commercial purposes (so called data mining), parody and pastiche exceptions, and exceptions for libraries for storage activities.[17] Renovating the system of exceptions and limitations to copyright not only permits a broader range of interests to be taken into account but also assures creative works a higher level of dissemination, both of which are necessary to the development of cultural industries and to ensure enjoyment of the fundamental right to culture.

However, against the background of the rising of a new perception of copyright, it becomes more and more necessary to strike a new balance among the interests of all stakeholders. An increasing number of users do not conceive copyright as a property right anymore but as a liability rule via which authors will be rewarded for the use of their creations, use that should not be prevented – at least from the users' standpoint – as long as it is compensated. In other words, copyrighted works are perceived as things that you can always use by paying for them; their use should not be fully controlled by the copyright holder. Although international copyright rules are not flexible enough to allow such a paradigm shift – the Berne Convention explicitly provides a set list of exclusive rights to which an exhaustive and very limited number of rights to be remunerated are added[18] – in practice, such a shift has already taken place in all those cases where a revenue-sharing system is adopted.[19] Moreover, current legal literature is inclined to consider such mechanisms as solutions to the un-authorized circulation of copyrighted material to the extent of proposing a change from the copyright default rule of "all rights reserved" to a "some rights reserved" rule with the possibility of authors opting for either of them (Ricolfi, 2011).

The development of distribution markets for copyrighted content shows that an effective legal framework should not predetermine a specific business model since the supply of digital content can benefit from a broader variety of hybrid models.

---

[15] The importance of exception rules for the economic growth of cultural industries is not new in the scenario of copyright law and its impact on the economy of cultural industries: among the studies on this issue, see Rogers & Szamosszegi, (2010).

[16] Bill C-11 of September 2011 is the fourth proposal that has been formulated to modernize Canadian copyright law. http://www.digital-copyright.ca/chronology.

[17] In the UK the modernization of copyright law has been triggered by the adoption of the Hargreaves Report in 2011. The British Government has endorsed the recommendations formulated by the report to foster the development of the digital economy in the UK (HM Government, *The Government Response to the Hargreaves Review of Intellectual Property and Growth*, 2011, http://www.ipo.gov.uk/ipresponse-full.pdf), to the extent of launching a public consultation, ended in March 2011, as well as a call for evidence, ended in March 2012 (the results of both processes are available at http://www.ipo.gov.uk/types/hargreaves.htm).

[18] Article 11bis of the Berne Convention introduces the possibility of a contracting state morphing the right to broadcast into a mere right to equitable remuneration. It has thus been argued, *a contrario,* that contracting states are not allowed to exercise this right in relation to the other economic rights. However, given the awkward formulation of this article, it has also been argued that such a broadcasting right would include the more general right to communicate to the public by any means. Subsequent treaties (1996 WIPO Treaties), though, have clarified the exclusive nature of the right to communicate to the public, impeding the possibility of transforming proprietary rules into liability rules (Ginsburg, 2004).

[19] A typical case is the "share-revenue" mechanism adopted by YouTube through their partnership programme and the ability of right holders to monitor, block or monetize their content ("YouTube Content & Video ID", http://www.youtube.com/t/contentid). Mass-licensing mechanisms like the one just mentioned are also under study in literature (see, e.g., Ericsson, 2011: 1811).

Therefore, in addition to the abovementioned reform in terms of copyright exceptions, the other key element of a modernization process is the topic of the liability regimes to be adopted for internet intermediaries. Broadly speaking, in all main jurisdictions, the current legal frameworks provide safe harbors shielding ISPs from indirect liability for the unauthorized activities that take place online by virtue of their intermediation insofar as they have no knowledge of the illegal source of the content.[20] However, given the amount of unauthorized content that circulates online, and the impossibility of enforcing copyright against third parties, copyright holders are currently attempting to limit the scope of such safe harbors by requiring ISPs to adopt measures like notice and disconnect, the blocking of websites and the filtering of content (Edwards, 2011: 26-36), measures that will significantly affect the way in which internet intermediaries operate online (Edwards, 2011: 7-12).

As a matter of fact, striking the line between the liability of intermediaries and their freedom to intermediate in online activities is a very difficult exercise. While, on the one hand, it is fundamental to avoiding the spread of illegal activities (i.e., in the case of online distribution or the circulation of unauthorized content), on the other hand, shifting the burden of preventing copyright infringement onto intermediaries could jeopardize the flourishing of diverse business models, including hybrid business models. Indeed, the excessive involvement of ISPs in the prevention of copyright infringement that would follow the narrowing of safe harbors would push internet intermediaries towards the adoption of business models that can be deemed "safe", i.e. business models that ensure the highest degree of control by copyright holders. In other words, the lack of or a very narrow safe harbor might push ISPs into intermediating solely for activities that permit right holders to control distribution via contractual terms and conditions as well as via technical measures of protection. These can refer to business models corresponding to those adopted by websites belonging to the proprietary and non-interactive cluster. In contrast, in order to encourage ISPs to host business activities that allow a high degree of interactivity, i.e. business models belonging to the more innovative clusters 2 and 3, it becomes crucial to ensure that they will not be held liable for the activities carried out by third parties. If liability regimes and safe harbors are properly carved out, ISPs can perform the activity of intermediating in diverse business models ranging from those that concentrate control in the hands of copyright holders to those that foster interaction among content users. This solution would not only enable Internet intermediaries to perform the role of "nurturers" of online activities but would also be beneficial for economic growth in general.

From our perspective, hence, any copyright modernization should promote the development of the cultural industries not only by aligning its provisions to the changes that the has created but also by considering the rules governing the online liability regime: it is only by combining these two sets of provisions that a framework effectively enabling the hybridization phenomenon already in course can be achieved.

**References**

Andersen, B. & Frenz, M. (2007. L'incidence du téléchargement de musique et du partage de fichiers poste à poste sur les ventes de musique : une étude préparée pour Industrie Canada,
http://www.ic.gc.ca/eic/site/ippd-dppi.nsf/fra/h_ip01456.html.

Balestrino, A. 2008. It Is a Theft But Not a Crime, *European Journal of Political Economy*, vol. 24, 2008/2, 455.

Blackburn, D. 2004. On-line Piracy and Recorded Music Sales. Working Paper at Harvard University.

[20] The main liability regimes are those adopted in the United States and within the European Union, whose principles have been implemented in almost all countries around the world (see Edwards, 2011: 14-15).

Borghi M., Maggiolino, M., Montagnani, L. & Nuccio M. 2012. Determinants in the On-line Distribution of Digital Contents: An exploratory analysis, *European Journal of Law and Technology,* vol. 3, n. 2

Boorstin, E. 2004. Music Sales in the Age of File Sharing, Senior thesis, Princeton University.

Brousseau E. & Penard T. 2009. Assembling Platforms: Strategy and Competition, in G. Madden and R. Cooper (Eds.), The Economics of Digital Markets, Edward Elgar: Cheltenham.

Brousseau E. & Penard T. 2007. The Economics of Digital Business Models: A Framework for Analyzing the Economics of Platforms, *Review of Network Economics*, vol. 6, n. 2 – June 2007.

BSA 2010. Piracy Impact Study: the economic Benefits of reducing software piracy, http://portal.bsa.org/piracyimpact2010/studies/piracyimpactstudy2010.pdf.

Chaudhry, P. E. & Stumpf, S. A. 2010. Consumer Complicity with Counterfeits: Fight or Flight - Addressing the Intellectual Property Issues in International Trade, *Global Trade and Customs Journal*, vol. 5, 2010/9.

Curien, N. & Moreau, F. 2007. The Convergence between Content and Access: Internalizing the Market Complementarity, *Review of Network Economics*, vol. 6, 2007/2, 161.

Curien, N. & Moreau, F. 2009. The Music Industry In The Digital Era: Toward New Contracts *Journal Of Media Economics,* 102-113.

Dejean, S. 2009. What Can We Learn from Empirical Studies about Piracy?, *CESifo Economic Studies*, vol. 55 2009/2, 326-352.

Edwards, L. 2011. Role and Responsability of Internet Intermediaries in the Field of Copyright and Related Rights,
http://www.wipo.int/copyright/en/doc/role_and_responsibility_of_the_internet_intermediaries_final.pdf.

Ericsson, S. 2011. The Recorded Music Industry and the Emergence of Online Music Distribution: Innovation in the Absence of Copyright (Reform), 79 The George Washington L. R., 1783.

EU Commission 2011. A Single Market for Intellectual Property Rights. Boosting creativity and innovation to provide economic growth, high quality jobs and first class products and services in Europe, Brussels 24.5.2011, COM (2011), 287,
http://ec.europa.eu/internal_market/copyright/docs/ipr_strategy/COM_2011_287_en.pdf.

GAO 2010. United States Government Accountability Office Report to Congressional Committees Intellectual Property, Observations on Efforts to Quantify the Economic Effects of Counterfeit and Pirated Goods, http://gao.gov/new.items/d10423.pdf.

Hawkins, R.W., Mansell, R. & Steinmueller, W.E. 1999. Toward Digital Intermediation in the Information Society, *Journal of Economic Issues* vol. 33 n. 2, 383-391.

Hargreaves, I. 2011. Digital Opportunity: A Review of Intellectual Property and Growth, IPO, http://www.ipo.gov.uk/ipreview-finalreport.pdf.

Hill, C. 2007. Digital piracy: Causes, consequences, and strategic responses, *Asia Pacific Journal of Management*, vol. 24, 2007/1, 9.

IFPI 2009., Jupiter Research: Study on online music piracy and purchasing habits, 13th November 2009,
http://www.ifpi.org/content/library/Jupiter_Research_study_on_online_piracy.pdf.

IFPI 2010. Digital Music Report 2010 Music how, when, where you want it, http://www.ifpi.org/content/library/DMR2010.pdf.

IPO Crime Group Report 2010., http://www.ipo.gov.uk/ipcreport10.pdf.

Jain, S. 2008. Digital Piracy: A Competitive Analysis, Marketing Science, vol. 27, 2008/4, 610.

Kohonen, T. 2001. Self-organizing maps, 3rd ed., Berlin: Springer-Verlag.

Liebowitz, S. J. 2008. Research Note: Testing File Sharing's Impact on Music Album Sales in Cities, *Management Science*, vol. 54, n. 4, 852-859.

Oberholzer-Gee, F., & Strumpf, K. 2007. The Effect of File Sharing on Record Sales: An Empirical Analysis, *Journal of Political Economy,* vol. 115, n. 1, 1-42.

OECD 2009. Piracy of Digital Content,

http://www.oecd.org/dataoecd/50/22/42619490.pdf.
Peitz, M., & Waelbroeck, P. 2006. Piracy of digital products: A critical review of the theoretical literature, *Information Economics and Policy*, vol. 18, 2006/4, 449.
Price Waterhouse Coopers 2009. Global entertainment and media outlook 2009-2013, 10th annual edition.
Ricolfi, M. 2011. Making Copyright Fit for the Digital Agenda, 12th EIPIN Congress 2011 - Constructing European IP: Achievements and new Perspectives Strasbourg, February 24th – 25th, 2011 European Parliament,
http://nexa.polito.it/nexafiles/Making%20Copyright%20Fit%20for%20the%20Digital%20Agenda.pdf.
Rogers, T., & Szamosszegi, A. 2010. Capital Trade Incorporated, Fair Use in the U.S. Economy, Economic Contribution of Industries Relying on Fair Use, Computer & Communications Industry Association.
Staake, T. Thiesse, & F. Fleisch, E. 2009. The emergence of counterfeit trade: a literature review, *European Journal of Marketing*, vol. 43, 2009/3-4, 320.
TERA Consultants 2010., Building a Digital Economy: The Importance of Saving Jobs in the EU's Creative Industries,
http://www.musictank.co.uk/reports/building-a-digital-economy-the-importance-of-saving-jobs-in-the-eus-creative-industries.
Theng Y.L., Tan W.T., Lwin M.O. & Shou-Boon S.F. 2010. An Exploratory Study of Determinants and Corrective Measures for Software Piracy and Counterfeiting in the Digital Age, *Computer and Information Science*, vol. 3, n. 3, August 2010.
TNO & IviR 2009., Ups and downs. Economic and cultural effects of file sharing on music, film and games, TNO Rapport
http://www.ivir.nl/publicaties/vaneijk/Ups_And_Downs_authorised_translation.pdf.
Ultsch, A., Guimaràes, G., Korus, D. & Li, H. 1993. Knowledge extraction from artificial neural networks and applications, Transputer-Anwender-Treffen/World-Transputer-Congress, Aachen: Springer Verlag, 194-203.
Vesanto, J., Himberg, J., Alhoniemi, E. & Parhankangas, J. 2000. SOM toolbox for Matlab 5. A57, Helsinki University of Technology, Espoo.
Zentner, A. 2006. Measuring the Effect of File Sharing on Music. Purchases, *Journal of Law and Economics*, vol. 49, 63-90.

**About the Author(s)**

Mariateresa Maggiolino is Assistant Professor at Bocconi University of Milan, Italy. Her main fields of interest are IP Law and Antitrust Law. Indeed, for the a.y. 2014-2015 she will be a visiting professor at Fordham University, where she will teach antitrust law. She has extensively published on international and Italian law reviews. Among her recent publications are: *EU concerted practices and US concerted actions—Beyond William H. Page's Proposal*, in *Journal of Competition Law and Economics*, forthcoming 2014 (with F. Ghezzi); *The regulatory breakthrough of competition law: definitions and worries*, in J. Drexl, F. Di Porto, *Antitrust as Regulation*, EE, forthcoming 2014; *Intellectual Property and Antitrust: A comparative Economic Analysis of US and EU Law*, EE, 2011.

Maria Lillà Montagnani is Associate Professor in Commercial Law at the Università Bocconi of Milan, Italy. She is also director of the Bocconi University ASK research centre (http://www.ask.unibocconi.it/wps/wcm/connect/Cdr/Centro_ASK/Home). For the a.y. 2014-2015 she will be faculty affiliate at the Berkman Center for Internet & Society at Harvard University, where she will develop a research project on the interaction between technology, urban architecture and citizens. She has published extensively in the fields of competition law and intellectual property law. Among her recent publications are: *Standardized Terms and Conditions for Open Patenting*, 14 *Minnesota Journal of Law, Science & Technology* 785-816 (2013) (with M. Maggiolino); *From art displays to art experience: what protection for art exhibitions and art festivals?*, 3 *Queen Mary Law*

*Journal* 204-223 (2013); and *Il diritto d'autore nell'era digitale: la distribuzione online delle opere dell'ingegno*, Giuffrè 2012.

Massimiliano Nuccio (PhD, MA) is a cultural economist and an expert of urban cultural policies. His research and teaching have focused on artistic practices and cultural industries from a socio-economic perspective. He is currently Adjunct Professor at Università Bocconi in Milano and Senior Research Fellow at ASK Bocconi and LTKA-Luiss Business School in Roma. For two years, he has been Visiting Professor in Culture and Regional Development at the Leuphana Universität Lüneburg. Among his latest publications: (2014) *Music consumption at the dawn of the music industry: the rise of a cultural fad, Journal of Cultural Economics*, 38(2), 145-171 (with Guerzoni M.); (2014) *Arts between tradition and marginality: a relational approach,* in *Beyond frames. Dynamics between the creative industries, knowledge institutions and the urban context*, 123-131 (with Pedrini S.); (2013) *Culture as an Engine of Local Development Processes: System□Wide Cultural Districts I: Theory*, *Growth and Change*, 44(4), 555-570 (with Sacco, P. L., Ferilli, G., Blessi, G. T.).